

## Efficient Mixing and Agitation

### Alfa Laval Side mounted agitators Type ALS

#### Application

| Application                                 | Typical examples   |
|---|--|
| Maintain media homogeneous                  | Milk storage tanks, cream tanks, mixed product tanks, UHT product storage tanks, etc.                              |
| Mixing and Solutions (dissolves)            | Fluid and fluid mixing, i.e. drinking yoghurt and fruit mix tanks, flavoured milk mix tanks, syrup mix tanks, etc. |
| Solid Dispersion                            | Powder protein + oil mix tanks, micro salt + milk product mix tanks, etc.  |
| Suspension                                  | Fluids with particles, i.e. juice tanks, crystallising tanks etc.  |
| Heat transmission                           | Circulation of media in tanks with dimple jacket (cooling or heating)  |
| Dairy Fermentation (break coagula + mixing) | Yoghurt tanks, cheese culture tanks, crème fraîche, etc.   |



#### TECHNICAL DATA

##### Motor

Motor size and speed as required for duty.  
As standard with IEC motor IP55, other types on request. As standard painted RAL5010.

##### Voltage and frequency

As standard for 3x380 to 420V, 50Hz - 3x440V to 480V, 60Hz  
All motor voltages and frequencies are available.

##### Gears

Different gear types available according to configuration.  
As standard filled with normal synthetic or mineral oil, optional: Food approved oil. As standard painted RAL5010.

##### Ordering

The following information is required to ensure correct sizing and configuration for ordering:

- Tank geometry
- Product properties
- Task of agitator
- Enquiry forms are available

#### PHYSICAL DATA

##### Materials

Available materials:

Steel parts: . . . . . AISI 316L (standard)  
 AISI 304  
 AISI 904L  
 SAF 2205  
 Other materials on request.

Seal rubber parts  
 (O-rings or bellows): . . . . . EPDM  
 FPM/FEP (only for stationary o-rings)  
 FPM  
 Other materials on request.

Mechanical seal parts: . . . . . Carbon  
 Carbon (FDA)  
 Silicon carbide

##### Certificates

3.1 Material certificates/FDA conformity statement according to 21 CFR177 on steel/elastomer parts in contact with media

##### Dimensions

Propeller standard diameter range:  $\varnothing$ 125 mm to 1900 mm. Specific dimensions on the drive unit and propeller(s) will depend on the actual configuration selected.

**Standard design**

The Alfa Laval range of side mounted propeller agitators is designed to meet almost every customer requirement. Due to their modular build, the agitators can be designed for every kind of application within the hygienic industry. The modular construction is designed with the aim to meet both European and American standards and regulations, such as EHEDG, USDA, FDA, 3A etc.

**Configurable design**

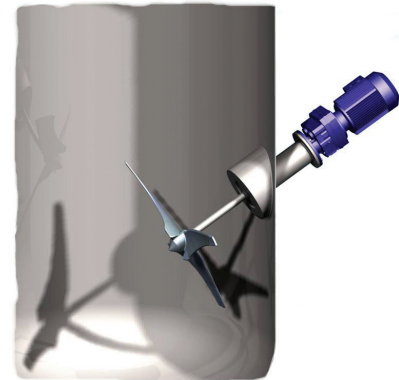
Type ALS agitator design is fully configurable divided in the following elements:

- Drives (drive + shaft support + shaft diameter)
- Seal arrangements (oil trap + shaft seal type)
- Shaft (length)
- Energy Saving Foils (propeller type + surface finish)
- Options

Each element has a broad range of different characteristics which makes it possible to size the agitator for all applications and requirements.

**Advantageous and profitable design**

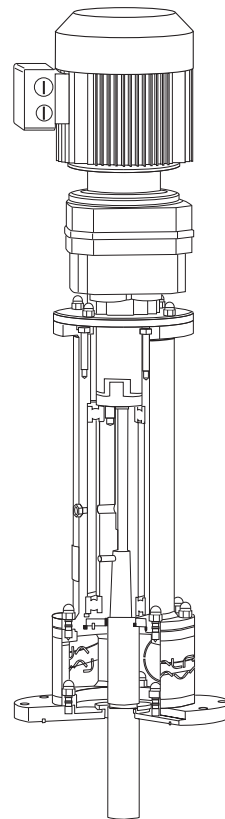
Each configuration offers a number of advantages, which are shown in the examples below:

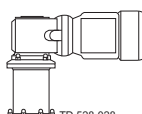
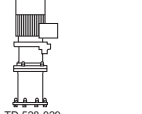
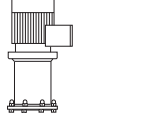
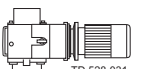
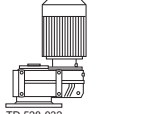
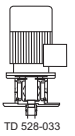

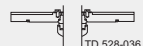
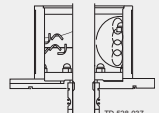
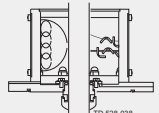
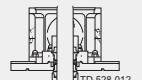
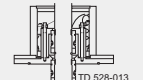









| Operation features       | Due to   |
|--------------------------|--|
| Low energy consumption   | the wide range of high efficiency propellers and drive units makes it possible to design for low operational costs |
| Gentle product treatment | the wide range of high efficiency propellers makes it possible to design for low shear operation                   |

| Hygienic features                                       | Due to   |
|---|--|
| Easy external cleaning                                  | stainless steel bearing frame design with O-ring seal (for wash down)  |
| Connections inside the tank (risk zones) can be avoided | bearing frame drives with drive shaft and special internal shaft connection without having a flange coupling inside the tank |
| Good drip off properties                                | no plane surfaces or grooves on internal parts   |
| Easy cleaning   | no interior shadow sides between the blades and smooth surfaces  |

| Maintenance features  | Due to  |
|---|---|
| All service (replacement of wear parts such as shaft seals, bearings etc.) can be done from outside of the tank | bearing frame drives with detachable shaft which can be dismantled from outside of the tank |
| Easy dismantling  | use of spider type coupling and stainless steel parts (no corrosion)                        |



| Type ALS   | Configuration  |  |  |  |   |   |  | Side mounted agitators  |
|--|--|--|--|--|---|---|--|---|
| <b>Drives</b>  |  |  |  |  |   |   |  |   |
| Bearing frame size = xx                                    |   |   |   |   |    |   |  |   |
| Shaft diameter = yy  |  |  |  |  |   |   |  |   |
| (not used if xx = yy)                                      |  |  |  |  |   |   |  |   |
|  | <b>-ME-GR-Bxx(yy)</b>  | <b>-ME-GC-Bxx(yy)</b>  | <b>-ME-Bxx(yy)</b>   | <b>-ME-GR-yy</b>   | <b>-ME-GP-yy</b>  |   |  |   |
| Description  | Stainless steel bearing frame and right angle gearbox  | Stainless steel bearing frame and coaxial gearbox  | Stainless steel bearing frame and direct motor drive   | Right angle gearbox, shaft mounted in hollow shaft of gearbox  | Parallel shaft gearbox, shaft mounted in hollow shaft of gearbox  |   |  |   |
| (power, speed and shaft diameter depending on application) |  |  |  |  |   |   |  |   |
| <b>Seal arrangements</b>                                   |  |  |  |  |   |   |  |  |
|  |   |   |   |   |    |    |  |   |
|  | <b>F-S1-</b>   | <b>F-S2-</b>   | <b>LF-S1-</b>  | <b>LF-S2-</b>  | <b>LF-D-</b>  | <b>LF-DT-</b>   | <b>-ME-yyLF-S1-</b>  |   |
| Description  | Seal flange with O-ring seal against tank flange, drain, oil trap (only geared versions) and shaft seal: single mechanical bellow seal | Seal flange with O-ring seal against tank flange, drain, oil trap (only geared versions) and shaft seal: single mechanical non-bellow seal | Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap (only geared versions) and shaft seal: single mechanical bellow seal | Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap (only geared versions) and shaft seal: single mechanical non-bellow seal | Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap and shaft seal: double mechanical seal for high pressure applications and aseptic use | Lantern (spacer), seal flange with O-ring seal against tank flange, drain, oil trap and shaft seal: double mechanical seal (tandem) for low pressure applications | Direct motor drive, shaft connected directly to motor, lantern (spacer), seal flange with O-ring seal against tank flange, drain and shaft seal: single mechanical bellow seal |   |
| (lower flange and seal material depending on application)  |  |  |  |  |   |   |  |   |
| <b>Shaft</b>   |  |  |  |  |   |   |  |   |
|  |    |  |  |  |   |   |  |   |
| Length = llll  | <b>-Sllll-</b>   |  |  |  |   |   |  |   |
| Description  | SS shaft, length according to application  |  |  |  |   |   |  |   |
| (material depending on application)                        |  |  |  |  |   |   |  |   |
| <b>Energy Saving Foils</b>                                 |  |  |  |  |   |   |  |   |
| Diameter = vv (125 mm to 1900 mm)                          |   |   |   |  |   |   |  |   |
|  | <b>-PvvvD3P</b>  | <b>-PvvvD3PE</b>   | <b>-PvvvD3G</b>  |  |   |   |  |   |
| Description  | 3 - bladed propeller, finish: polished Standard: Ra < 0.8 µm   | 3 - bladed propeller, finish: polished and electro polished Standard: Ra < 0.8 µm  | 3 - bladed propeller, finish: shot peened  |  |   |   |  |   |
| (material depending on application)                        |  |  |  |  |   |   |  |   |
| <b>Optional</b>  |  |  |  |  |   |   |  |   |
|  |   |   |   | <b>S</b>   |   |   |  |   |
|  | <b>Welding flange</b>  | <b>Blind flange</b>  | <b>Cover for Motor / gear motor )</b>  | <b>Spare part kit</b>  |   |   |  |   |
| Description  | Incl. mounting pin bolts and nuts  | Incl. O-ring seal  | Stainless steel cover - comes in different shapes according to drive type  | Standard spare part kit  |   |   |  |   |

